

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/065,557	ROCHE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Len Tran	1725	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/30/02.
2. ☒ The allowed claim(s) is/are 1 and 3-20.
3. ☒ The drawings filed on 10/30/02 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                     | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance             |
|  | 9. <input type="checkbox"/> Other _____  |

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Mathew Jakubowski on April 20, 2004

The application has been amended as follows:

**Claims 2, 21, and 22 are canceled. Claims 21 and 22 may be filed as divisional application.**

**Claim 1 has been replaced as follow:**

1. A method for producing a freeze-cast substrate, the method comprising:
  - (a) introducing a refractory slurry into a mold unit comprised of a mold contained within a casting receptacle, and
  - (b) lowering the temperature of the refractory slurry to freeze the refractory slurry and form a freeze-cast substrate while controlling temperature gradients within the mold

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unit to minimize distortion in the freeze-cast substrate, wherein the lowering step includes placing an insulating material around an entire portion of the casting receptacle.

**Claim 3 has been replaced as follows:**

3. The method of claim 1, wherein the insulating material has a thermal conductivity of about 0.04 w/m K or less.

**Claim 4 has been replaced as follows:**

4. The method of claim 1, wherein the insulating material is comprised of a fiberglass insulating material.

**Claim 13 has been replaced as follows:**

13. A method for producing a freeze-cast substrate, the method comprising:

- (a) introducing a refractory slurry into a mold unit comprised of a mold contained within a casting receptacle;
- (b) placing insulation material around an entire portion of the casting receptacle to minimize distortion in the freeze-cast substrate by controlling temperature gradients within the mold unit; and
- (c) lowering the temperature of the refractory slurry to freeze the slurry to form a freeze-

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cast substrate.

**Claim 18 has been replaced as follows:**

1 8. A mold unit for producing a freeze-cast substrate from a refractory slurry, the mold unit comprising:

(a) a mold;

(b) a substrate receptacle having a base panel and four interconnected side panels being substantially perpendicular to and connected with the base panel, the base panel having a receiving surface for receiving the mold, and each side panel having an inner and outer surface, and

(c) a layer of insulating material provided around an entire portion of the outer surfaces of the side panels and base panel for minimizing distortion in the freeze-cast substrate by controlling temperature gradients within the mold and the refractory slurry.

The following is an examiner's statement of reasons for allowance:

The prior arts of record fail to teach the combination steps of introducing a refractory slurry into a mold unit comprised of a mold contained within a casting receptacle, and lowering the temperature of the refractory slurry to freeze the refractory slurry and form a freeze-cast substrate while controlling temperature gradients within the mold

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unit to minimize distortion in the freeze-cast substrate, wherein the lowering step includes placing an insulating material around an entire portion of the casting receptacle. WO 97/01407 is considered closest prior art. However, the insulation layer is not entirely covering the receptacle, but only the walls.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Len Tran whose telephone number is (571) 272-1184. The examiner can normally be reached on M-F, 8:30 - 5.

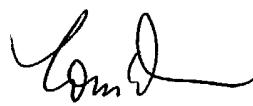
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Len Tran  
Examiner  
Art Unit 1725

LT  
April 20, 2004



TOM DUNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700